REMARKS

The Applicant respectfully requests further examination and reconsideration in view of the amendments made above and the arguments made below. Claims 1-10, 13-15, 17 and 20-35 were pending. Within the Office Action, Claims 1-10, 13-15, 17 and 20-33 have been rejected and Claims 34 and 35 have been objected to. By the above amendments, Claims 1, 6, 13, 14, 15, 17 and 34 have been amended. Accordingly, Claims 1-10, 13-15, 17 and 20-35 are now pending.

The support for the above amendments to the claims is found throughout the present specification, but particularly on pages 16-18 and Figures 16 and 17.

Rejections under 35 U.S.C. § 101

Within the Office Action, Claim 15 has been rejected under 35 U.S.C. §101 because it is stated the claimed invention is directed to non-statutory subject matter. The Applicant respectfully disagrees. Claim 15 is directed to a computer readable medium on which a computer program to be executed by a computer has been recorded. This is clearly statutory subject matter. The subject matter of Claim 15 is also supported by the Present Specification. Specifically, the Present Specification describes the claimed invention sufficiently for one skilled in the art to understand and apply the claimed invention. [Present Specification, page 10, line 5 through page 13, line 13 and the accompanying figures] Furthermore, a person skilled in the art would immediately recognize that the constituent components of the invention, such as a serving support node, gateway support node, radio network controller, and so on, are typically implemented on computer hardware, and therefore a skilled person of the art would be in no doubt from the description and the drawings that the invention is able to be manifested in the form of a computer readable medium on which a program to be executed by a computer has been recorded. Therefore, the rejection should be withdrawn.

Rejections under 35 U.S.C. § 102

Within the Office Action, Claim 13 has been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. 2003/0081592 to Krishnarajah ("Krishnarajah"). By the above amendment, Claim 13 has been amended to be dependent upon the independent Claim 1. As described in detail below, the independent Claim 1 is allowable. Accordingly, Claim 13 is also allowable as being dependent on an allowable base claim.

Rejections under 35 U.S.C. § 103

Within the Office Action, Claims 1-10, 14, 15, 17 and 20-33 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Krishnarajah in view of U.S. Patent Application Publication No. 2003/0021256 to Lee ("Lee"). Krishnarajah teaches a method and apparatus for transporting different classes of data bits in a payload over a radio interface. Krishnarajah teaches that the payload data is divided into a first group of bits associated with a first treatment class and a second group of bits associated with a second treatment class.

Lee teaches a packet data transmitting method in a CDMA mobile communication system. Lee teaches that an ATM protocol is used for communication between an SGSN and a GGSN and a downlink TEID and an uplink TEID are assigned to an RNC and the GGSN and thereby, GTP tunnels are integrated into one GTP tunnel.

The presently claimed invention is clearly distinguished from the teachings of Krishnarajah, Lee and their combination by virtue of the following features:

- The generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node.
- The appending of the payload data types indicator (RFCI) to the parsed internet packet addressed to the mobile node.
- The identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer.

The present invention has at least two significant advantages over Krishnarajah. Firstly, Krishnarajah requires that internet packets containing a plurality of different data types are fragmented into groups of the different data types and each group is encapsulated into a packet with an identifier header which is then mapped onto a radio bearer. Thus, each incoming internet packet is divided into a number of new internet packets, each of which is mapped onto a corresponding number of bearers. This contrasts with the present invention which appends a payload data types indicator (RFCI) to the incoming AMR frame which is then sent as a single frame to the RNC. As is acknowledged in Krishnarajah [Paragraph [0037]], sending a greater number of smaller packets incurs a performance penalty because additional headers are required. The present invention, as claimed in Claim 1, sends only one packet for transmission for every received AMR frame and therefore does not suffer this drawback.

Secondly, the present invention results in a substantial infrastructure benefit. The only change that need be implemented in a mobile network to allow a mobile user equipment to take part in a AMR based VoIP call with an external host, is the addition of an IP sub-layer to the SGSN. As a result of the addition of the payload data types indicator (RFCI) to the internet packet, the RNC treats the received internet packet like any other AMR based transmission. An efficiency of resources is achieved by doing this as existing functionality within the network (i.e., the RNC recognizing an RFCI and providing radio bearer accordingly) is re-used. This contrasts with the method taught in Krishnarajah which requires new functionality at several layers:

1. Functionality to inspect the packet and fragment it down into groups of bits.
2. Functionality to encapsulate the groups of bits in corresponding IP packets and add header data.
3. Functionality to map the IP packets according to the header data.

and upon transmission,

4. Functionality to de-capsulate and recombine the group of bits constituting the original packet.

Therefore, it would be simpler and cheaper to implement the present invention than it would to implement any of the schemes taught in Krishnarajah.

Neither, Krishnarajah, Lee nor their combination teach the generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node. Neither, Krishnarajah, Lee nor their combination teach the appending of the payload data types indicator (RFCI) to the parsed internet packet addressed to the mobile node. Neither, Krishnarajah, Lee nor their combination teach the identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer.

The independent Claim 1 is directed to a telecommunications system for providing a facility for communicating internet packets to and/or from a mobile user equipment, payload data of the internet packets comprising a plurality of different types of data. The system of Claim 1 comprises a packet radio network which includes a gateway support node, a serving support node and a radio network controller, the gateway support node being operable to provide an interface

for communicating the internet packets between the mobile user equipment and the packet data network, the serving support node being operable to control communication of the internet packets between the gateway support node and the mobile user equipment using a radio network controller, the radio network controller being operable to provide radio access bearers for communicating the internet packets to and from the mobile user equipment, wherein the gateway support node in combination with the serving support node are operable in response to context application request data from the mobile user equipment to establish a virtual communications channel between the gateway support node and the mobile user equipment via the serving support node, the context application request data representing a request for the virtual communications channel for communicating the internet packets containing the different types of data, the context application request data specifying a main set of quality of service parameters and including at least one other data field representing a request for a different set of quality of service parameters, each set of quality of service parameters being provided for one of the different types of data in the internet packet, the virtual communications channel including a bearer for communicating the internet packets between the gateway support node and the serving support node and a plurality of radio access bearers, each of the radio access bearers being provided for one of the different types of payload data of the internet packets, each radio access bearer providing one of the main and other set of quality of service parameters for the different data types specified by the context application request data, and the serving support node is operable, in response to the context application request data from the mobile user equipment, to parse an internet packet addressed to the mobile user equipment comprising an internet protocol header and a plurality of different types of data, to generate a payload data types indicator in which the payload data type indicator is a representation of payload types information describing the different types of payload data in the internet packet addressed to the mobile user equipment and append the payload data types indicator to the internet packet addressed to the mobile user equipment, and to send the internet packet addressed to the mobile user equipment with the appended payload data types indicator to the radio network controller via the virtual communications channel, and the radio network controller being operable to identify the payload data types indicator, and in accordance with the payload data types indicator, to provide each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. As described above, neither, Krishnarajah, Lee nor their combination teach the generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node.

Further, as described above, neither, Krishnarajah, Lee nor their combination teach the appending of the payload data types indicator (RFCI) to the parsed internet packet addressed to the mobile node. As also described above, neither, Krishnarajah, Lee nor their combination teach the identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. For at least these reasons, the independent Claim 1 is allowable over the teachings of Krishnarajah, Lee and their combination.

Claims 2-5, 13 and 20-26 are dependent on the independent Claim 1. As described above, the independent Claim 1 is allowable over the teachings of Krishnarajah, Lee and their combination. Accordingly, Claims 2-5, 13 and 20-26 are all also allowable as being dependent on an allowable base claim.

The independent Claim 6 is directed to method of communicating internet packet data to and/or from a mobile user equipment via a packet radio network, payload data of each internet packet comprising a plurality of different types of data, the packet radio network including a gateway support node, a serving support node and a radio network controller. The method of Claim 6 comprises using the serving support node of the packet radio network to control communication of the internet packets between the gateway support node and the mobile user equipment using the radio network controller, the radio network controller being operable to provide radio access bearers for communicating the internet packets to and from the mobile user equipment, communicating context application request data to the gateway support node, the context request data representing a request for a virtual communications channel for communicating the internet packets containing the different types of data via the packet radio network, the context application request data including a data field specifying a main set of quality of service parameters and including at least one other data field representing a request for a different set of quality of service parameters, each of the sets of quality of service parameters being provided for one of the different types of data in the internet packets, and establishing the virtual communications channel between the gateway support node and the mobile user equipment in response to the context application request data for communicating the internet packet data, including establishing a plurality of radio access bearers in accordance with each of the sets of the quality of service parameters, each radio access bearer being provided for communicating one of the plurality of different types of payload data of internet data packets,

using the serving support node, in response to the context application request data from the mobile user equipment to parse an internet packet addressed to the mobile user equipment comprising an internet protocol header and a plurality of different types of data, to generate a payload data types indicator in which the payload data types indicator is a representation of payload types information describing the different types of payload data in the internet packet addressed to the mobile user equipment and append the payload data types indicator to the internet packet addressed to the mobile user equipment, and sending the internet packet addressed to the mobile user equipment with the appended payload data types indicator to the radio network controller via the virtual communications channel, and the radio network controller being operable to identify the payload data types indicator, and in accordance with the payload data types indicator, to provide each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. As described above, neither, Krishnarajah, Lee nor their combination teach the generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node. Further, as described above, neither, Krishnarajah, Lee nor their combination teach the appending of the payload data types indicator (RFCI) to the parsed internet packet addressed to the mobile node. As also described above, neither, Krishnarajah, Lee nor their combination teach the identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. For at least these reasons, the independent Claim 6 is allowable over the teachings of Krishnarajah, Lee and their combination.

Claims 7-10 and 27-33 are dependent on the independent Claim 6. As described above, the independent Claim 6 is allowable over the teachings of Krishnarajah, Lee and their combination. Accordingly, Claims 7-10 and 27-33 are all also allowable as being dependent on an allowable base claim.

The independent Claim 14 is directed to an apparatus for communicating internet packet data to and/or from a mobile user equipment via a gateway support node, the internet packet data carrying a plurality of different types of data. The apparatus of Claim 14 comprises means for communicating the data packets between to the mobile user equipment and the gateway support node, means for controlling communication of the data packets between the mobile user equipment using a radio network controller, the radio network controller being operable to provide radio access bearers for communicating the internet data packets to and from the mobile

user equipment, means for communicating context application request data to the gateway support node, the context application request data representing a request for a virtual communications channel for communicating the data packets containing the different types of data, the context application request data including a data field specifying a main set of quality of service parameters and at least one other data field representing a request for a different set of quality of service parameters, each of the sets of quality of service parameters being provided for one of the different types of data in the data packet, and means for establishing the virtual communications channel between the gateway support node and the mobile user equipment in response to the context application request data, including establishing a radio access bearer in accordance with each of the sets of quality of service parameters for communicating the different types of payload data in the internet packets, means for, in response to the context application request data from the mobile user equipment, parsing an internet packet addressed to the mobile user equipment comprising an internet protocol header and a plurality of different types of data, and for generating a payload data types indicator in which the payload data types indicator is a representation of payload types information describing the different types of payload data in the internet packet addressed to the mobile user equipment and appending the payload data types indicator to the internet packet addressed to the mobile user equipment, and means for sending the internet packet addressed to the mobile user equipment with the appended payload data types indicator to the radio network controller, the radio network controller being operable to identify the payload data types indicator, and in accordance with the payload data types indicator, to provide each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. As described above, neither, Krishnarajah, Lee nor their combination teach the generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node. Further, as described above, neither, Krishnarajah, Lee nor their combination teach the appending of the payload data types indicator (RFCI) to the parsed intemet packet addressed to the mobile node. As also described above, neither, Krishnarajah, Lee nor their combination teach the identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. For at least these reasons, the independent Claim 14 is allowable over the teachings of Krishnarajah, Lee and their combination.

The independent Claim 15 is directed to a computer readable recording medium on which a computer program to be executed by a computer has been recorded, the program comprising the steps of communicating internet packets to and/or from a mobile user equipment via a packet radio network, payload data of each of the internet packets comprising a plurality of different types of data, the packet radio network including a gateway support node, a serving support node and a radio network controller, controlling communication of the internet packets between the gateway support node and the mobile user equipment using the radio network controller, the radio network controller being operable to provide radio access bearers for communicating the internet packets to and from the mobile user equipment, communicating context application request data to the gateway support node, the context application request data representing a request for a virtual communications channel for communicating the internet packets containing the different types of data between the gateway support node and the mobile user equipment, the context application request data including a data field specifying a main set of quality of service parameters and at least one other data field representing a request for a respective set of quality of service parameters, each of the sets of quality of service parameters being provided for one of the different types of data in the internet packets, and establishing the virtual communications channel in response to the context application request data, including establishing a radio access bearer for each of the sets of quality of service parameters for communicating the different types of payload data in the internet packets, using the serving support node, in response to the context application request data from the mobile user equipment to parse an internet packet addressed to the mobile user equipment comprising an internet protocol header and a plurality of different types of data, to generate a payload data types indicator in which the payload data types indicator is a representation of payload types information describing the different types of payload data in the internet packet addressed to the mobile user equipment and append the payload data types indicator to the internet packet addressed to the mobile user equipment, and sending the internet packet addressed to the mobile user equipment with the appended payload data types indicator to the radio network controller, and the radio network controller being operable to identify the payload data types indicator, and in accordance with the payload data types indicator, to provide each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. As described above, neither, Krishnarajah, Lee nor their combination teach the generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node. Further, as described above, neither, Krishnarajah, Lee nor their combination teach the

appending of the payload data types indicator (RFCI) to the parsed internet packet addressed to the mobile node. As also described above, neither, Krishnarajah, Lee nor their combination teach the identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. For at least these reasons, the independent Claim 15 is allowable over the teachings of Krishnarajah, Lee and their combination.

The independent Claim 17 is directed to an apparatus for communicating internet packet data to and/or from a mobile user equipment via a gateway support node, the internet packet data carrying a plurality of different types of data. The apparatus of Claim 17 comprises means for communicating the data packets between to the mobile user equipment and the gateway support node, means for controlling communication of the data packets between the mobile user equipment using a radio network controller, the radio network controller being operable to provide radio access bearers for communicating the internet data packets to and from the mobile user equipment, means for communicating context application request data to the gateway support node, the context application request data representing a request for a virtual communications channel for communicating the data packets containing the different types of data, the context application request data including a data field specifying a main set of quality of service parameters and at least one other data field representing a request for a different set of quality of service parameters, each of the sets of quality of service parameters being provided for one of the different types of data in the data packet, and means for establishing the virtual communications channel between the gateway support node and the mobile user equipment in response to the context application request data, including establishing a radio access bearer in accordance with each of the sets of quality of service parameters for communicating the different types of payload data in the internet packets, means for, in response to the context application request data from the mobile user equipment, parsing an internet packet addressed to the mobile user equipment comprising an internet protocol header and a plurality of different types of data, and for generating a payload data types indicator in which the payload data types indicator is a representation of payload types information describing the different types of payload data in the internet packet addressed to the mobile user equipment and appending the payload data types indicator to the internet packet addressed to the mobile user equipment, and means for sending the internet packet addressed to the mobile user equipment with the appended payload data types indicator to the radio network controller, the radio network controller being operable to identify

the payload data types indicator, and in accordance with the payload data types indicator, to provide each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. As described above, neither, Krishnarajah, Lee nor their combination teach the generation of a payload data types indicator (RFCI) by the serving support node (SGSN) based on the content of the parsed internet packet addressed to the mobile node. Further, as described above, neither, Krishnarajah, Lee nor their combination teach the appending of the payload data types indicator (RFCI) to the parsed internet packet addressed to the mobile node. As also described above, neither, Krishnarajah, Lee nor their combination teach the identification of the payload data types indicator (RFCI) by the RNC, and in accordance with the payload data types indicator (RFCI), the provision for each of the different types of payload data of the internet packet addressed to the mobile user equipment to a corresponding radio bearer. For at least these reasons, the independent Claim 17 is allowable over the teachings of Krishnarajah, Lee and their combination.

Allowable Subject Matter

Within the Office Action, it is indicated that Claims 34 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. By the above amendments, Claim 34 has been rewritten in independent form to include the limitations of the base claim and any intervening claims. Claim 35 is dependent upon the independent Claim 34. Accordingly, Claims 34 and 35 are allowable.

For the reasons given above, Applicants respectfully submit that all of the pending claims are now in condition for allowance, and allowance at an early date would be greatly appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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